

Serial No. 10/781,411
60137-245; 185-3067-UREMARKS

Claims 1, 2, 6-9, 18, 20 and 22-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Schlüter (3,975,128) in view of Nennecker (5,498,151). Regarding claims 1 and 6, the Examiner argues that it would be obvious to modify the quieting chamber 12 of Schlüter to include a piston having an arcuate end portion as taught by Nennecker, and argues that this design would be "beneficial since it would lessen the need for specialized shapes in the mold valve chamber and piston design and instead be of the standard tubular design that can be machined by drills, thereby reducing costs for construction of the apparatus." Applicant respectfully disagrees with this argument.

Schlüter teaches away from including an injection piston having an end segment that includes an arcuate portion, and therefore it is not obvious to employ an injection piston 3 with an arcuate end portion in Schlüter. Schlüter discloses that "it has been found that causing the mixture to flow around a right angle as it exits from the mixing chamber has a particularly effective quieting effect on the mixture so that it can thereafter be injected into the mold as a relatively smooth fluid" (column 2, lines 26-31). Schlüter teaches "a piston 3 having a *planar end face 7*" (column 3, lines 12-13) wherein the piston 3 "is advanced until its end face 7 lies *flush with the wall 13* of the chamber 12" (column 3, lines 10-12). As illustrated in Figures 2-4, the chamber 12 has a planar surface (13, 14, 15). The planar end face 7 facilitates the flow around a right angle into the quieting chamber 12. Adapting Schlüter to include a piston 3 having an end segment that includes an arcuate portion would result in the piston not being flush with the wall 13 of the chamber 12, and may prevent the mixture of reactive components from flowing at a right angle into the quieting chamber, which are both contrary to the teachings of Schlüter. Therefore, the stated motivation of lessening the need for specialized shapes by using a standard tubular design goes against the teachings of Schlüter.

It is also not obvious to adapt the chamber 12 of Schlüter to have a circular cross section. Schlüter teaches that "...at least one portion of the inner surface of the quieting chamber is formed as a planar region" (column 2, lines 33-34) and that "[t]he width of the opening of the mixing chamber into the quieting chamber is narrower than the width of the planar region so that when the piston has a planar end face it can be held in a position exactly flush and contiguous with this surface so as to allow the piston of the quieting chamber to neatly sweep all of the mixture out of the quieting chamber and into the mold" (column 2, lines 37-44). As illustrated in Figures 2-4, the chamber 12 has a planar surface (13, 14, 15). Also, as discussed above, Schlüter teaches a simple planar end face 7 design so that mixture may flow at a

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right angle into the quieting chamber 12. Adapting Schlüter to contain a circular mold valve chamber would result in the inner surface of the quieting chamber not having a planar region, and may prevent the right angle flow of mixture, both of which are contrary to the teachings of Schlüter. Accordingly, Applicant respectfully requests that the rejection of claims 1, 2, 6-9, 18, 20 and 22-27 be withdrawn.

Additionally, regarding claims 26-27, none of the cited references disclose a diameter of an injection piston being less than a diameter of a mold valve chamber. The large diameter piston 4 of Schlüter has a planar end face 7, and thus does not have a diameter. The mixing piston 12 of Nennecker has a diameter that is the same as, not less than, that of the passageway 36 (see Figure 2 of Nennecker). Accordingly, Applicant respectfully requests that the rejection of claims 26-27 be withdrawn.

Applicant previously requested clarification the following statement from the Examiner: "the mold valve chamber of Schlüter need not change cross-section from a circular cross section to a half circle due to a flat piston end face in an attempt to have a closed off cross section at the junction between the mold valve chamber and injection valve chamber." Applicant has reviewed the Examiner's remarks, and Applicant thanks the Examiner for acknowledging the request for clarification; however, applicant still respectfully requests clarification of this specific statement.

Claims 3-5, 10 and 15-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Schlüter (3,975,128) in view of Nennecker (5,498,151) as applied to claims 1, 2, 6-9, 18, 20 and 22-25, and in view of Walker (3,655,208) and Jepsen (3,373,999). The Examiner argues that this combination would be obvious "because it provides a seal for the piston to prevent leakage." However, Schlüter discloses that "the piston 1 is advanced until its end face 7 *lies flush with the wall* 13 of the chamber 12" (column 4, lines 10-12). If the end face 7 of Schlüter was flush with the wall 13 then there would be no need to prevent leakage.

Additionally, as argued above, the claimed invention is not obvious in view of the Schlüter and Nennecker references, and the rejection has not presented an articulated reason for combining the Schlüter and Nennecker references that does not go against the teachings of the Schlüter base reference. The addition of the Walker and Jepsen references has not provided the necessary articulated reasoning for combining the Schlüter and Nennecker references. The rejection is therefore improper. Additionally, claims 3-5, 10 and 15-17 are allowable because they depend on allowable claims 1 and 6. Applicant respectfully requests that this rejection be withdrawn.

Regarding claim 10, the Examiner argues that the claim does not teach a structural limitation and merely state that the air injection system communicates in response to a position of a mold valve piston.

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The Examiner argues that this is akin to a process of using the apparatus in response to a condition and provides no structural limitation. However, claim 10 recites "a gas injection system," which is a component of the molding system of claim 6. The Examiner also argues that claim 10 merely reiterates a claimed feature presented in independent claim 6. Applicant respectfully disagrees with this assertion, as claim 10 recites that the "gas injection system communicates with said mold valve chamber *in response to a position of a mold valve piston* movable within said mold valve chamber." This feature was not presented in claim 6. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

No additional fees are seen to be required. If any additional fees are due, however, the Commissioner is authorized to charge Deposit Account No. 50-1482, in the name of Carlson, Gaskey & Olds, P.C., for any additional fees or credit the account for any overpayment. Therefore, favorable reconsideration and allowance of this application is respectfully requested.

Respectfully Submitted,

CARLSON, GASKEY & OLDS, P.C.

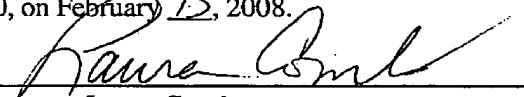


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CERTIFICATE OF TRANSMISSION UNDER 37 CFR 1.8

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Laura Combs